WHAT IS CLAIMED IS:

1. A 3D image reproduction data generator that generates 3D image reproduction data for a 3D image reproducer that directs a plurality of rays at an observer's one eye to form a 3D image at intersections of the rays,

wherein said data generator generates 3D image reproduction data for reproduction of said 3D image using a plurality of parallax images.

2. The 3D image reproduction data generator according to claim 1, wherein said plurality of parallax images are images acquired at a plurality of viewing points, and their pixel count and alignment match the number and alignment of ray sources.

3. The 3D image reproduction data generator according to claim 2, wherein when obtaining said plurality of parallax images, only an effective area for generating said 3D image reproduction data is clipped by trimming.

4. The 3D image reproduction data generator according to claim 3, wherein after said trimming, the trimmed image is further shrunk or stretched.

5. The 3D image reproduction data generator according to claim 2, wherein when obtaining said plurality of

parallax images, to limit an effective area for generating 3D image reproduction data, an area indicator board that indicates said area is shot together with the object.

6. The 3D image reproduction data generator according to claim 5, wherein said area indicator board is set up virtually and is not taken into the parallax image data acquired.

7. The 3D image reproduction data generator according to claim 2, wherein when obtaining said plurality of parallax images, the locations of the viewing points move in the imaging system such that the optical axis of the imaging system will move in parallel.

8. The 3D image reproduction data generator according to claim 5, wherein when obtaining said plurality of parallax images, the locations of the viewing points move in the imaging system such that the optical axis of the imaging system will always pass through the center of said effective area.

9. The 3D image reproduction data generator according to claim 1, wherein said 3D image reproduction data is a group of rays emitted from the ray sources and sampled on a plane that is located near the observer

and intersects with the group of rays, said data having pixel count and alignment that match the number of viewing points and alignment of said ray sources needed to obtain said parallax images.

10. The 3D image reproduction data generator according to claim 9, wherein said 3D image reproduction data is generated from said plurality of parallax images, with pixels from the same location in each of the parallax images arranged according to the alignment of the parallax images.

11. The 3D image reproduction data generator according to claim 1, wherein said 3D image reproduction data is represented as parallax image arrays Q (i, j) of w2 pixels wide × h2 pixels high parallax images, w2 and h2 coincide with the horizontal resolution and vertical resolution, respectively, of the viewing points for obtaining said parallax image data, and (i, j) corresponds to the locations of the ray sources capable of generating said 3D image reproduction data,

said parallax image data is represented as image arrays P (x, y) of w1 pixels wide × h1 pixels high images, w1 and h1 coincide with the horizontal resolution and vertical resolution, respectively, of said sources, and (x, y) corresponds to the locations

of the viewing points for obtaining said parallax image, and

any given element image Q (m, n) of said image arrays Q (i, j) is formed by mapping the pixel information at the location (m, n) in said image arrays P (x, y) for all the values of x and y to the pixel information at the location (m, n) of the image Q (m, n).

12. A 3D image reproduction data generator that generates 3D image reproduction data for a 3D image reproducer that directs a plurality of rays at an observer's one eye to form a 3D image at intersections of the rays,

wherein said 3D image reproduction data generator generates said 3D image reproduction data for reproducing said 3D image by arranging pixels according to the alignment of said viewing points, said pixels being obtained from the same location in each of the parallax images acquired at a plurality of viewing points.

13. A 3D image reproduction generating method that generates 3D image reproduction data for a 3D image reproducer that directs a plurality of rays at an observer's one eye to form a 3D image at intersections of the rays,

wherein said generating method generates 3D image reproduction data for reproduction of said 3D image using a plurality of parallax images.

14. The 3D image reproduction data generating method according to claim 13, wherein said plurality of parallax images are images acquired at a plurality of viewing points, and their pixel count and alignment match the number and alignment of ray sources.

15. The 3D image reproduction data generating method according to claim 14, wherein when obtaining said plurality of parallax images, only an effective area for generating said 3D image reproduction data is clipped by trimming.

16. The 3D image reproduction data generating method according to claim 15, wherein after said trimming, the trimmed image is further shrunk or stretched.

17. The 3D image reproduction data generating method according to claim 14, wherein when obtaining said plurality of parallax images, to limit an effective area for generating 3D image reproduction data, an area indicator board that indicates said area is shot together with the object.

18. The 3D image reproduction data generating method according to claim 17, wherein said area indicator board is set up virtually and is not taken into the parallax image data acquired.

19. The 3D image reproduction data generating method according to claim 14, wherein when obtaining said plurality of parallax images, the locations of the viewing points move in the imaging system such that the optical axis of the imaging system will move in parallel.

20. The 3D image reproduction data generating method according to claim 17, wherein when obtaining said plurality of parallax images, the locations of the viewing points move in the imaging system such that the optical axis of the imaging system will always pass through the center of said effective area.

21. The 3D image reproduction data generating method according to claim 13, wherein said 3D image reproduction data is a group of rays emitted from the ray sources and sampled on a plane that is located near the observer and intersects with the group of rays, said data having pixel count and alignment that match the number of viewing points and alignment of said ray sources needed to obtain said parallax images.

22. The 3D image reproduction data generating method according to claim 21, wherein said 3D image reproduction data is generated from said plurality of parallax images, with pixels from the same location in each of the parallax images arranged according to the alignment of the parallax images.

23. The 3D image reproduction data generating method according to claim 13, wherein said 3D image reproduction data is represented as parallax image arrays Q (i, j) of w2 pixels wide × h2 pixels high parallax images, w2 and h2 coincide with the horizontal resolution and vertical resolution, respectively, of the viewing points for obtaining said parallax image data, and (i, j) corresponds to the locations of the ray sources capable of generating said 3D image reproduction data;

said parallax image data is represented as image arrays P (x, y) of w1 pixels wide × h1 pixels high images, w1 and h1 coincide with the horizontal resolution and vertical resolution, respectively, of said sources, and (x, y) corresponds to the locations of the viewing points for obtaining said parallax image data; and

any given element image Q (m, n) of said image arrays Q (i, j) is formed by mapping the pixel

information at the location (m, n) in said image arrays P (x, y) for all the values of x and y to the pixel information at the location (m, n) of the image Q (m, n).

24. A 3D image reproduction data generating method that generates 3D image reproduction data for a 3D image reproducer that directs a plurality of rays at an observer's one eye to form a 3D image at intersections of the rays,

wherein said 3D image reproduction data generating method generates said 3D image reproduction data for reproducing said 3D image by arranging pixels according to the alignment of said viewing points, said pixels being obtained from the same location in each of the parallax images acquired at a plurality of viewing points.

25. A computer-readable storage medium that stores program code created in accordance with the method recited in claim 13.